
GAOResources, Community, and Economic
Development Division

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Environmental Protection Issue Area Plan

Fiscal Years 1995-97



Foreword


As the investigative arm of the Congress and the nation's auditor, the General Accounting Office is charged with following the federal dollar wherever it goes. Reflecting stringent standards of objectivity and independence, GAO's audits, evaluations, and investigations promote a more efficient and cost-effective government; expose waste, fraud, abuse, and mismanagement in federal programs; help the Congress target budget reductions; assess financial information management; and alert the Congress to developing trends that may have significant fiscal or budgetary consequences. In fulfilling its responsibilities, GAO performs original research and uses hundreds of databases or creates its own to compile and analyze information.

To ensure that GAO's resources are directed toward the most important issues facing the Congress, each of GAO's 32 issue areas develops a strategic plan that describes its key issues and their significance, the objectives and focus of its work, and the planned major job starts. Each issue area relies heavily on input from congressional committees, agency officials, and subject-matter experts in developing its strategic plan.

With the nation's annual environmental compliance costs approaching \$120 billion, GAO's work in the Environmental Protection Issue Area generally focuses on increasing the cost-effectiveness of environmental programs. This emphasis recognizes the continuing high growth in these costs while unmet environmental needs remain. Consequently, limited public and private environmental resources need to be used in ways that best protect human health and the environment. This issue area covers the Environmental Protection Agency (EPA), the Council of Environmental Quality (CEQ), and other agencies responsible for carrying out environmental laws, policies, and programs. The principal issues facing the Congress and the administration in the environmental area are

- evaluating EPA's management and budget to help ensure that available resources are used efficiently and effectively;
- assessing the government's management of hazardous waste site cleanups, which are estimated to cost hundreds of billions of dollars;
- reviewing the implementation and the cost-effectiveness of air quality measures required by the Clean Air Act Amendments of 1990; and
- identifying cost-effective alternatives to protect the nation's water resources and to ensure safe drinking water supplies.

In the pages that follow, we describe our key planned work on these important issues during our 3-year planning period (fiscal years 1995 through 1997). This year's update to the plan contains some slight changes in emphasis to reflect current congressional interest and available resources. Also, because unanticipated events may significantly affect even the best of plans, our planning process allows for updating this plan during the year as needed to respond quickly to emerging issues. If you have any questions or suggestions about this plan, please call me or Stanley J. Czerwinski, Associate Director, at (202) 512-6511.

A handwritten signature in black ink, appearing to read 'P. F. Guerrero', with a stylized, sweeping flourish extending to the right.

Peter F. Guerrero
Director
Environmental Protection Issues

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Table I: Key Issues

Issue	Significance
Management and budget: Do EPA's approaches to environmental protection ensure that resources are optimally targeted and spent?	Continued progress in environmental protection will be costly. Increasingly, questions are being raised about whether environmental spending is targeted on the highest priority needs. This attention to the cost-effectiveness of environmental programs is especially important with the increased budgetary pressures at all levels of government. Greater attention needs to be given to performance-based measures of progress coupled with more flexible, incentive-based regulatory approaches; more effective partnerships between EPA and the states; and better management.
Hazardous and solid waste: Is the government effectively managing waste programs and ensuring that hazardous waste sites are cleaned up cost-effectively?	Under the Superfund law, hazardous waste cleanups are expected to cost billions of dollars and take decades. The federal government faces the largest liability, potentially hundreds of billions of dollars. Concerns about this program center on the slow pace and high cost of cleanups as well as inefficiencies in administering the program. With the law up for reauthorization, these issues are the subject of much debate.
Air quality: Is the federal government implementing the Clean Air Act Amendments cost-effectively and are emerging issues, such as climate change, being appropriately addressed?	While the overall quality of our nation's air has improved, air pollution problems continue. In the next few years, the Clean Air Act Amendments of 1990 require EPA to establish more regulations to reduce acid rain, ozone-forming emissions, and airborne toxic chemicals. These new regulations are expected to add significantly to the annual costs of compliance, which now exceed \$25 billion. Concerns about these costs and other challenges to achieving these reductions have focused attention on the use of innovative and cost-effective approaches. In addition, the buildup of carbon dioxide and other heat-trapping gases in the earth's atmosphere has raised concerns about the greenhouse effect and global warming. The United States is the world's largest contributor to carbon dioxide emissions, and costly actions may be needed to mitigate climate changes.
Water quality: Is the government cost-effectively protecting surface water, groundwater, and drinking water?	Annual costs to control water pollution are expected to increase significantly in the coming years—reaching around \$65 billion by the year 2000. Local governments and private industries will bear most of these costs. The increases are primarily attributable to the costs for treating wastewater and meeting new federal mandates for protecting drinking water.

Table I: Key Issues

Objectives	Focus of work
<ul style="list-style-type: none"> •Identify ways for EPA and the states to achieve environmental results cost-effectively. •Assess ways to enhance the efficiency and effectiveness of EPA's management of environmental programs. •Examine the effectiveness of EPA and state partnerships in reaching environmental objectives. 	<ul style="list-style-type: none"> •Performance- and incentive-based alternatives to current regulatory approaches •Potential efficiencies and cost savings in EPA's budget •Opportunities to improve relations between EPA and the states
<ul style="list-style-type: none"> •Provide the Congress with information to aid in its reauthorization of hazardous (Superfund) and solid waste legislation. •Examine ways to improve the efficiency, cost-effectiveness, and pace of cleanups as well as waste management. 	<ul style="list-style-type: none"> •Federal budget implications of completing cleanups •Federal and state responsibilities for cleanups •Innovative methods and technologies to encourage waste management and cleanup, including incentives for private voluntary cleanups and accelerated cleanup processes
<ul style="list-style-type: none"> •Assist the Congress in its oversight of EPA's implementation of the Clean Air Act Amendments of 1990. •Review how EPA ensures that it considers the most cost-effective control measures when implementing regulations to address air quality problems. •Assess agency initiatives to address emerging issues, such as climate change. 	<ul style="list-style-type: none"> •EPA's efforts to revise its air quality standards and to improve the accuracy of its air quality modeling •The adequacy and usefulness of cost-benefit and other analyses that EPA uses to make its regulatory decisions •The costs and timing of the federal government's role in reducing greenhouse gases
<ul style="list-style-type: none"> •Identify ways to ensure that compliance costs bring commensurate benefits. •Provide the Congress with information to assist in its reauthorization of the Clean Water and Safe Drinking Water Acts. 	<ul style="list-style-type: none"> •Opportunities to improve the cost-effectiveness of decisions to address water quality problems •The progress of federal, state, and local governments in responding to the most significant water quality concerns •Legislative options for achieving water quality goals cost-effectively

Table II: Planned Major Work

Issue	Planned Major Job Starts
Management and budget	<ul style="list-style-type: none">•Assess how well EPA's regulatory reform initiatives decrease reporting requirements for businesses and provide states and businesses with increased flexibility to implement environmental programs.•Review EPA's justification for its fiscal year 1997 budget request.•Review the effectiveness of EPA's planning and budgeting processes.•Review EPA's peer review process that assesses the quality of scientific data used in its regulatory decisions.
Hazardous and solid waste	<ul style="list-style-type: none">•Determine if EPA has corrected previously reported deficiencies in recovering its costs, contracting, and setting priorities for cleanups in its management of the Superfund program.•Identify ways to perform more cost-effective cleanups of hazardous waste sites at federal facilities.•Assess priority setting for cleaning up hazardous waste sites at federal facilities.•Identify which states have already assumed some Superfund cleanup program responsibilities and what their responsibilities are.•Review how efficiently and effectively states manage cleanups of Superfund hazardous waste sites.•Review "best practices" in state programs that offer private businesses incentives to voluntarily clean up hazardous waste sites.
Air quality	<ul style="list-style-type: none">•Assess how accurately EPA's computer model predicts reductions in emissions from motor vehicles.•Review the quality and usefulness of cost benefit analyses to help ensure the cost-effectiveness of air quality regulations.•Review developed countries' progress in reducing greenhouse gas emissions and identify factors affecting their progress.
Water quality	<ul style="list-style-type: none">•Examine the states' needs for and spending of federal funds to finance the construction of wastewater treatment facilities.•Assess the progress of federal, state, and local governments in responding to the most significant water quality concerns.



United States
General Accounting Office
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**National Security and
International Affairs Division**

B-262193

October 6, 1995

The Honorable Harold P. Smith, Jr.
Assistant to the Secretary of Defense,
Atomic Energy

Dear Dr. Smith:

We have been reviewing test results and operations at the Army's prototype chemical weapons incinerator on Johnston Atoll, the first of nine planned facilities administered by the U.S. Army Chemical Demilitarization and Remediation Activity. In our January 12, 1995, letter to the Secretary of the Army and in our July 14, 1995, testimony before the House Subcommittee on Military Procurement,¹ we discussed the progress made in meeting destruction rate goals and indications that the disposal program's life-cycle cost, currently estimated at \$12 billion, was understated. This letter discusses the performance of the Johnston Atoll operation and maintenance contractor and actions to improve its performance.

RESULTS IN BRIEF

Johnston Atoll's operation and maintenance contractor has not sustained the high levels of performance desired. Between 1987 and 1991, the contractor's performance rating dropped from 92 to 70 out of a possible 100 points. In 1991, the Army added a 3-percent contract base fee and increased the award fee percentages to encourage improved timeliness and quality in the contractor's performance. Our analysis of performance scores and award fees from 1992 to 1994 showed that the contractor's overall performance did not improve relative to Army expectations, even though it received almost \$5 million more in fees. According to Army program officials, the contractor's performance in terms of the volume of chemical agent destroyed improved throughout the period, but not at the rate expected.

¹Chemical Weapons Disposal: Issues Related to DOD's Management (GAO/T-NSIAD-95-185, July 13, 1995).

The contract's award fee structure, delays in making award fee determinations, and strained and ineffective communications have not encouraged the contractor to achieve high performance levels. However, the Army and the contractor have recently taken steps to improve facility operations and alleviate an ineffective and unproductive working relationship. Both Army and contractor program officials agree that use of joint problem-solving approaches have contributed to improved operations. However, these management improvements could be enhanced if the Army were to formally adopt a management team approach called partnering, at the Johnston Atoll facility.

INCREASED INCENTIVE PAYMENTS DID
NOT IMPROVE CONTRACTOR PERFORMANCE
RELATIVE TO EXPECTATIONS

In 1986, the Army awarded a 5-year, cost-plus-award fee contract to Raytheon Engineers and Constructors, Inc.,² for the operation and maintenance of the Johnston Atoll prototype facility. The contract provided the contractor a 5-percent award fee based on estimated costs. The award fee is provided to encourage the contractor to excel in such areas as quality, timeliness, technical ingenuity, and cost-effective management. During the initial 5-year contract, the contractor's overall average performance rating was 75 out of a possible 100 points, declining from 92 in 1987 to 70 in 1991. During this period, the contractor earned nearly \$2 million in award fees.

In 1991, the Army negotiated a contract extension. To motivate the contractor toward higher performance, a base fee was added, and the award fee was increased. Although the contractor received higher fees under the 1991 contract, expected increases in the levels of performance were not achieved. During the period, the contractor steadily increased the volume of chemical agent destroyed, but Army program officials had expected greater increases in volume because the contractor had gained experience running the facility. The contractor's performance ratings surged in 1992 with a score of 82 but declined in 1993 and 1994 with scores of 71 and 69, respectively. Between 1992

²At that time, the contractor was called Stearns Catalytic Corp. In 1987, the contractor changed its name to United Engineers & Constructors, Inc. In 1994, it changed its name again to Raytheon Engineers and Constructors, Inc.

and 1994, the average score for the contractor's overall performance was 74. This score was slightly lower than the average contractor score of 75 between 1987 and 1991. Nonetheless, changes in the evaluation criteria and fee structure enabled the contractor to earn almost \$5 million more in fees than it would have earned for similarly rated performance under the original zero-base, 5-percent award fee contract structure. Table 1 shows the amount of fees earned from 1992 to 1994, and table 2 shows the fees that would have been earned during the same period if the contract terms had remained at a 5-percent award fee with no base fee.

Table 1: Fees Earned Under 1991 Contract Terms

Dollars in thousands

Fiscal year	Base fee	Available award fee	Percent fee earned	Award fee earned	Total
1992	\$1,382	\$2,631	74.7	\$1,965	\$3,347
1993	1,404	2,417	47.9	1,157	\$2,561
1994	1,377	3,017	43.1	1,300	\$2,677
Total	\$4,163	\$8,065	54.8^a	\$4,422	\$8,585

^aThis is an average, not a total.

Table 2: Projection of Fees that Would have been Earned Under the 1986 Contract Terms Based on the Army's Evaluation of the Contractor's Performance

Dollars in thousands

Fiscal year	Base fee	Projected available award fee	Percent fee earned	Projected award fee earned	Projected total fee
1992	0	\$2,193	74.7	\$1,638	\$1,638
1993	0	2,014	47.9	964	\$964
1994	0	2,514	43.1	1,083	\$1,083
Total	0	\$6,721	54.8^a	\$3,685	\$3,685

^aThis is an average, not a total.

FACTORS INFLUENCING CONTRACTOR PERFORMANCE

The contract's award fee structure, delays in making award fee determinations, and strained and ineffective communications have not encouraged the contractor to achieve high performance levels.

Award Fee Was Not Structured to Motivate Contractor

The contract's award fee structure may not encourage the contractor to achieve high performance levels because much of the fee can be earned at lower performance levels. According to the Federal Acquisition Regulation, cost-plus-award fee contracts are cost-reimbursement contracts that provide for a base fee (which can be zero) set at inception of the contract and an award fee that the contractor can earn in whole or in part based on the government's judgment of the contractor's performance. The base fee compensates the contractor for minimum acceptable performance, and the award fee is an additional fee provided to encourage the contractor to excel in such areas as quality, timeliness, technical ingenuity, and cost-effective management.

The Army's Contracting Support Agency, in summarizing the concerns of the Army's Office of General Counsel, stated that the award fee criteria under the 1986 contract did not provide an incentive to motivate the contractor toward higher performance levels because the contractor could earn more than half of the award fee for performance that did not exceed expected standards. The agency recommended reallocating more of the award fee to higher levels of performance.

In 1991, the Army negotiated a contract extension to August 1996. In negotiating the contract, the Army had hoped to motivate the contractor toward higher performance by adding a 3-percent base fee and increasing the award fee from 5 to 6 percent. The Army also intended to raise the scoring levels under which an award fee could be earned to recognize the added profit provided by the base fee and ensure the government of acquiring improved performance.

In examining the 1991 award fee terms, we found that although the Army had added the base fee and increased the award fee amount, it had not significantly changed the scoring levels under which the contractor earned award fees. Moreover, the Army did not reallocate the fee so

that the contractor would earn a larger portion of the fee at the higher performance levels. As table 3 shows, the contractor can still earn 44 percent of the award fee in addition to the 3-percent base fee, or 63 percent of the combined base and award fee for acceptable performance. Program officials told us they were working to reallocate award fees toward higher performance levels for the 1996 contract.

Table 3: Award Fee Terms Under the 1986 and 1991 Contracts

Rating*	1986 contract			1991 contract				
	Maximum raw score	Percent of fee	Award fee (Percent of cost)	Maximum raw score	Percent of award fee	Award fee (Percent of cost)	Percent of award/base fees	Total fee (Percent of cost)
Acceptable	69	52	2.6	69	44	2.7	63	5.7
Good	84	83	4.2	84	79	4.8	86	7.8
Superior	100	100	5.0	100	100	6.0	100	9.0

Note: Percentages have been rounded.

*The rating category terms changed between the 1986 and 1991 contracts. For simplicity of presentation, the 1991 contract rating terms are shown. The rating terms under the 1986 contract were, in ascending order, good, very good, and excellent.

Award Fee Determinations Are Not Timely

The contract requires that final award fee determinations be made within 60 days of the contract evaluation period. Our review of eight award fee periods since 1992 showed that the Army took an average of 144 days to issue final award fee determinations. These long determination periods caused delayed contractor payments, which in turn contributed to tension between contractor and Army officials.

Actions to Improve Working Relationships

Ineffective and strained communications between program headquarters in Edgewood, Maryland, and both Army and contractor managers on Johnston Atoll contributed to delays in resolving operational issues. The Army became concerned about the contractor's performance in late 1993 and early 1994 due to an increase in procedural violations that

increased risks to workers' safety. These violations included an agent spill inside the plant, an agent-contaminated ton container passing in proximity to maintenance personnel, a rocket igniting inside the plant due to improperly cleaned sensors, and an agent leak into the atmosphere. The Army addressed these concerns by stopping operations for about 4 months to investigate and implement design changes, reducing the contractor's award fee, and restricting the reopened facility to 12-hour day operations rather than the planned 24-hour day. Contractor managers told us that over centralized management from the Army's program headquarters in Edgewood, Maryland slowed decision making and resulted in operational delays.

In March 1994, the Army formed a joint Army/contractor team, known as the Red Team, to identify opportunities for improved facility management. The team identified communication and management weaknesses and recommended 135 action items concerning program management, personnel qualifications, organizational structure and lines of authority, maintenance procedures, and Army/contractor communication practices. According to the Army, failure to implement these recommendations would cause significant cost and schedule risk for the Johnston Atoll facility's operations. The Army told us that, as of February 1995, 110 of the team's recommendations had been satisfactorily implemented. Some of the recommendations that were implemented are the

- reinstitution of quarterly executive meetings between Army and contractor officials, which had been suspended for 2 years;
- designation of Army and contractor counterparts within functional areas (e.g., environment and operations) to resolve issues at the subject expert level rather than the directorate level; and
- development of a Critical Activities Manual, which identifies activities affecting safety that require an increased level of planning and management support.

In addition, the Army gave more authority to its on-site project manager to resolve operational problems. Both Army and contractor officials believed this authority would expedite decision-making and prevent some operational delays resulting from waiting for approval from program headquarters.

Although it may be too early to assess the success or failure of these initiatives, both Army and contractor functional managers at the Johnston Atoll facility were optimistic that these initiatives would contribute to improved operations. Some pointed to the existence of clearly defined goals and the teamwork approach to problem solving as contributors to a successful environmental trial burn. These approaches also contributed to the completion of repairs to the liquid incinerator ahead of schedule, enabling the facility to restart munitions destruction 2 weeks earlier than planned. In November 1994, the contractor was authorized to start 24-hour operations, and recent contractor performance ratings increased to the superior level.

These initiatives are similar to a contract management approach advocated by the Army Corps of Engineers known as partnering. Partnering is a noncontractual agreement that creates an owner-contractor relationship that promotes achievement of mutually beneficial goals. The approach depends on the personal commitment of the management team built through personal contact, establishes a joint statement of goals, and identifies specific disputes prevention processes designed to head off problems. In June 1992, the contractor proposed adopting the approach for the Johnston Atoll facility. Although Army program officials believe the approach promotes the achievement of mutually beneficial goals and has formally adopted or plans to adopt the approach at each of the stateside facilities, it rejected the 1992 proposal to adopt the concept at Johnston Atoll. According to the program officials, formally adopting the approach at Johnston Atoll was not necessary because current working arrangements similar to partnering already exist.

Although the initiatives taken at Johnston Atoll have been positive, their continuance depends on strong management support and commitment and the creation of an organizational culture that values and employs cooperative behavior such as open communication, information sharing, and trust. Program officials recently told us that they planned to include a partnering approach for managing the upcoming 1996 Johnston Atoll contract, which will be awarded noncompetitively to the current contractor.

RECOMMENDATIONS

To further improve the administration of the Johnston Atoll operation and maintenance contract, we recommend that you ensure that the Commander of the U.S. Army Chemical Demilitarization and Remediation Activity

- develops a new contract award fee structure that recognizes the base fee as compensation for acceptable performance and requires the contractor to perform above the acceptable level to earn an additional award fee,
- determines and provides the award fees within the 60-day contractual period, and
- formalizes the government's intention to continue its team approach to managing the Johnston Atoll facility by proposing the partnering approach during the 1996 contract negotiations.

AGENCY COMMENTS AND OUR EVALUATION

The Department of Defense (DOD) did not concur with our recommendation to develop a new award fee structure because it believed the current award fee structure already required the contractor to perform above the acceptable level to earn award fee. It stated that because the final award fee rating was a composite of 10 distinct areas of performance, an acceptable rating, particularly at the highest ends of the category, could include many areas of good performances. Moreover, DOD stated that, at the lower end of the acceptable category (ratings of 50 to 54), the contractor does not receive award fee. In addition, because the Johnston Atoll contractor is already in place, a change in award fee structure would be subject to negotiation with the contractor. Because future facilities' contracts are not yet in place, the Army is planning to adjust those award fee structures so that more award fee is earned at higher levels of performance.

We agree that developing a new contract award fee structure for the existing Johnston Atoll contract cannot be unilaterally implemented by the Army and must be negotiated with the contractor. However, the Army will have an opportunity to negotiate a revised award fee structure for the 1996 contract renewal.

DOD partially concurred with our recommendation to ensure that award fee letters are provided within the 60-day contractual period. Because financial data for the period is not available until 45 days after the end of the period, DOD stated that the 60-day period is not realistic. DOD agreed, however, that efforts were needed to shorten the time frame for providing award fee and stated that it would establish a 90-day objective for the Johnston Atoll facility.

DOD concurred with our recommendation to include a partnering approach in the new Johnston Atoll contract and plans to incorporate the approach into the stateside facilities' contracts.

SCOPE AND METHODOLOGY

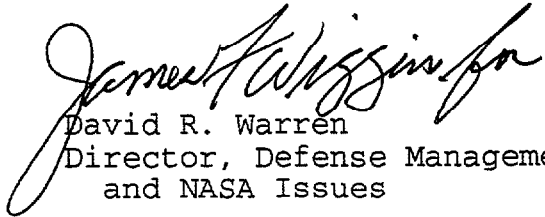
At the Army's Chemical Demilitarization and Remediation Activity in the Aberdeen Proving Ground, Edgewood, Maryland, we interviewed program management officials and analyzed documentation on the Johnston Atoll facility's daily operations. We also analyzed the contractor's performance ratings and the Army's rating standards from 1987 to 1994, but did not try to evaluate the contractor's performance independent of the Army's changing requirements and expectations. We visited and interviewed Army and Raytheon officials at their contract administration offices in Honolulu, Hawaii, and at the Johnston Atoll facility. In addition, we discussed the disposal program with officials at the Office of the Secretary of Defense, Washington, D.C. We conducted our review from January to June 1995 in accordance with generally accepted government auditing standards.

We are sending copies of this report to the Secretaries of Defense and Army; the Chairmen and Ranking Minority Members of the Subcommittee on National Economic Growth, Natural Resources, and Regulatory Affairs, House Committee on Government Reform and Oversight; Senate Committee on Armed Services; House Committee on National Security; and House and Senate Committees on Appropriations. We will also make copies available to others on request.

B-262193

Please contact me at (202) 512-8412 if you or your staff have any questions. Major contributors to this report are Clementine Rasberry, Assistant Director, and Margaret Klucsarits, Evaluator-in-Charge.

Sincerely yours,



David R. Warren
Director, Defense Management
and NASA Issues

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